

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

**Thematic issue: B iologics in autoimmune diseases**

**This is the author's manuscript**

*Original Citation:*

*Availability:*

This version is available <http://hdl.handle.net/2318/1609767> since 2016-11-04T11:10:02Z

*Published version:*

DOI:10.1016/j.intimp.2015.05.006

*Terms of use:*

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

This Accepted Author Manuscript (AAM) is copyrighted and published by Elsevier. It is posted here by agreement between Elsevier and the University of Turin. Changes resulting from the publishing process - such as editing, corrections, structural formatting, and other quality control mechanisms - may not be reflected in this version of the text. The definitive version of the text was subsequently published in INTERNATIONAL IMMUNOPHARMACOLOGY, 27 (2), 2015, 10.1016/j.intimp.2015.05.006.

You may download, copy and otherwise use the AAM for non-commercial purposes provided that your license is limited by the following restrictions:

- (1) You may use this AAM for non-commercial purposes only under the terms of the CC-BY-NC-ND license.
- (2) The integrity of the work and identification of the author, copyright owner, and publisher must be preserved in any copy.
- (3) You must attribute this AAM in the following format: Creative Commons BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/deed.en>), 10.1016/j.intimp.2015.05.006

The publisher's version is available at:

<http://linkinghub.elsevier.com/retrieve/pii/S1567576915002271>

When citing, please refer to the published version.

Link to this full text:

<http://hdl.handle.net/>

## Thematic issue: Biologics in autoimmune diseases

S. Sciascia<sup>a,b</sup>, M.J. Cuadrado<sup>b</sup>

<sup>a</sup> Centro di Ricerche di Immunologia Clinica ed Immunopatologia e Documentazione su Malattie Rare (CMID), Department of Clinical and Biological Sciences, Università di Torino, Italy

<sup>b</sup> Louise Coote Lupus Unit, Guy's and St Thomas' NHS Foundation Trust, London, UK

Autoimmune diseases are a heterogeneous group of conditions with diverse clinical manifestations and extremely complex pathogenesis. The better understating of innate and adaptive immunity, the identification of structures and interactions leading to a breakdown of self-tolerance, and the recognition of cross-talk between immunity with other biological systems continue to grow, paving the way to novel treatments for autoimmune conditions. Antibodies are superbly suited to be developed into therapeutics with appropriate immune stimulatory or inhibitory activity. In the 1990s, tumor necrosis factor (TNF) inhibitors were the first biological disease-modifying antirheumatic drugs (DMARDs) used to treat rheumatic conditions. Since then, new biological drugs have emerged, such as inhibitors of IL-1, IL-6 and others, with different mechanisms of action that include inhibitions of cytokines, depletion of B cells and the inhibition of T-cell co-stimulation. Clinical trials remain open to test their efficacy and safety, as well as to measure clinical outcomes in different conditions and patient populations. The industry is also eager to develop biotherapeutics that are similar but cheaper than the currently existing biologics; these are the so-called “biosimilars.” Thus, biologic therapy has become a new weapon in the war against autoimmune diseases and it is rapidly expanding in terms of its specificity, efficacy and safety profiles compared with the traditional non-biologic DMARDs. These agents have completely revolutionized the natural history of diseases such as rheumatoid arthritis (AR) and other inflammatory arthritis, ANCA-associated vasculitis and systemic lupus erythematosus (SLE). However, although life-changing in most patients, the adverse effects accompanied with biologic therapy such as infection and immunogenicity make it quite important to decide appropriately when and how to use these agents. Research in order to identify new candidate targets of biologic therapy in autoimmune disease is currently ongoing. Based on this background, we assembled this special issue for International Immunopharmacology to describe the molecular aspects of the mechanisms of action of biological agents, discuss the adverse effects and limitations of established therapies and analyze the alternative approaches in autoimmune diseases, such as RA, SLE, Sjögren's Syndrome (SS), and vasculitis. In this special issue, Roccatello and coworkers [1] summarized the biologic agents currently available to treat RA, mainly focusing on non anti-TNF agents. Lutalo PM and D'Cruz DP [2] gave an update on the use of biologics in ANCA-associated vasculitis (AAV) and provided prospective biologic therapies that might be used in the management of AAV in the future. The use of biologics in ANCA-negative vasculitis was summarized by Loricera J et al. [3]. Gheitsi H [4] on the behalf of SS Study Group, Autoimmune Diseases Study Group and Spanish Society of Internal Medicine reported an analysis about the available therapeutic approaches in a cohort of 1120 patients with SS. Sciascia et al. [5] detailed a state-of-the-art review about available and upcoming biological therapies on SLE. Lopez-Pedrerera et al., give new insights of alternative treatment for patients with antiphospholipid syndrome others than oral anticoagulation [6] and Lie et al. [7] delivered an overview of emerging biosimilar therapies for autoimmune conditions, providing a new insight into pros and cons of these new treatment strategies in rheumatic diseases. As clinical applications of the biological agent expand, and other classes join the revolution in the treatment of autoimmune disorders, an updated insight of available and upcoming therapeutic drugs will become increasingly important, with the potential to dramatically improve patient care and management.

## References

- [1] D. Rossi, V. Modena, S. Sciascia, D. Roccatello, Rheumatoid arthritis: biological therapy other than anti-TNF, *Int. Immunopharmacol.* 27 (2) (Mar 31 2015) 185–188.
- [2] P.M. Lutalo, D.P. D'Cruz, Biological drugs in ANCA-associated vasculitis, *Int. Immunopharmacol.* 27 (2) (Apr 20 2015) 209–212.
- [3] J. Loricera, R. Blanco, J.L. Hernández, T. Pina, M.C. González-Vela, M.A. González-Gay, Biologic therapy in ANCA-negative vasculitis, *Int. Immunopharmacol.* 27 (2) (Mar 28 2015) 213–219.
- [4] H. Gheitasi, B. Kostov, R. Solans, et al., SS Study Group, Autoimmune Diseases Study Group (GEAS), Spanish Society of Internal Medicine (SEMI). How are we treating our systemic patients with primary Sjögren syndrome? Analysis of 1120 patients, *Int. Immunopharmacol.* 27 (2) (Apr 18 2015) 194–199.
- [5] S. Sciascia, E. Talavera-Garcia, D. Roccatello, et al., Upcoming biological therapies in systemic lupus erythematosus, *Int. Immunopharmacol.* 27 (2) (2015) 189–193.
- [6] Ch. Lopez-Pedrerá, M.D. Aguirre-Zamorano MA, P. Ruiz Limón, C. Perez-Sanchez, Y. Jimenez-Gomez, N. Barbarroja, M.J. Cuadrado, Immunotherapy in antiphospholipid syndrome, *Int. Immunopharmacol.* 27 (2) (2015) 200–208. [7] G. Lie, S. Sciascia, M.J. Cuadrado, Biosimilar vs biological agents in rheumatology: when are biosimilar agents similar enough? *Int. Immunopharmacol.* 27 (2) (Apr 20 2015) 220–223.